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THE FUTURE OF FRAMING

August 2010

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Thinking Ahead

**When Change
Forces Innovation**

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*Framing the
AMERICAN
DREAM*

Thinking Ahead

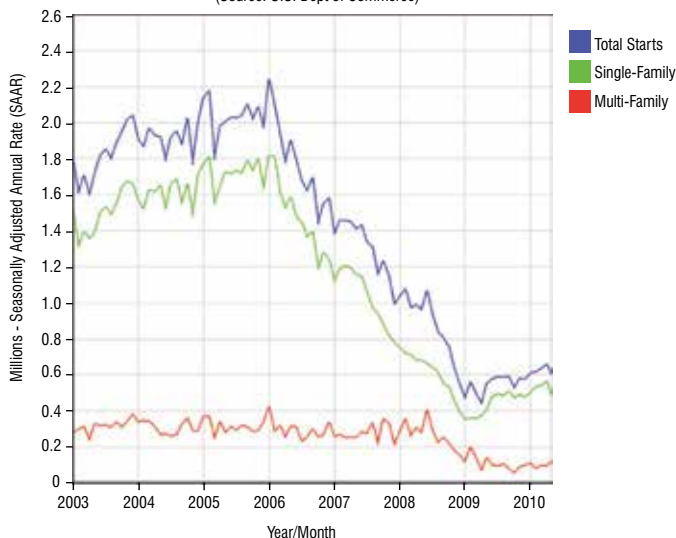
When Change Forces Innovation

by SBC Staff

Change can force people, households, even entire markets to reinvent themselves. The housing industry is going through a monumental change in terms of reinventing itself. We've seen housing starts plunge almost 70 percent after peaking in 2006 (see graphic below). Not only are we building fewer homes, but they're also getting smaller. A new Census Bureau report tells us that after rising thirty straight years, the average new home square footage fell about four percent to 2,400 in 2009.¹ Bedrooms are smaller, and people seem to want fewer of them.

U.S. Housing Starts 2003 - Current

(Source: U.S. Dept of Commerce)



Housing starts plunged almost 70 percent after peaking in 2006.

Household income and wealth are the primary factors influencing current homebuilding trends. According to a report by the Joint Center for Housing Studies of Harvard University, real household wealth² declined from \$526,000 in 1999 to \$486,000 in 2009. The study continues, "If incomes do not bounce back quickly, Americans will have to choose whether to cut back on the size and features of their homes or allocate larger shares of their incomes to housing." Today's home buyer is less interested in owning the largest home on the block, much more concerned with costs. Consumers are more focused on preserving their money, protecting themselves in case they lose their jobs, cutting costs, reducing energy consumption and realizing a shorter commute.

"Builders know it's much more difficult to control the quality and waste when you're putting the pieces together on the jobsite. That's why the more ways we can find to get components into a house, the better."

¹ Source: National Association of Home Builders, www.nahb.org/news_details.aspx?newsID=10898, June 14, 2010.

² The U.S. Census Bureau says household wealth is comprised of main home equity; other real estate; a farm or private business; automobiles, motor homes, or boats; checking and saving accounts, stocks, bonds, retirement accounts and other investment vehicles; the cash value of life insurance; and valuable collections.

Our industry has had to respond to the reduction in starts and the smaller homes through dramatic changes to their business models. While several hundred component manufacturers did not have the capital, stable markets or customer relationships to survive these unprecedented changes, those making it through this period will emerge facing a far different competitive landscape, what many are calling a “new normal.”

According to Ken Cloyd, President of California Truss Company, the changes in the housing industry give component manufacturers a tremendous opportunity to innovate. “Tough times are when you push harder to come up with creative ways to make money and get new products into the market,” he says. Cloyd, together with Barry Dixon, brought the message of the changing homebuilding industry to BCMC 2009 in a three-part presentation.

Diversifying products and services for builders, says Cloyd, is the way to profit in our new reality. What was at one time a \$12 billion a year industry has been cut at least in half, which automatically means fewer jobs and less opportunity to make a profit. Cloyd believes the only way to supplement sales is for component manufacturers to figure out how to turn more of the house into components.

Following up their BCMC presentation with an online session for SBCA’s Annual Workshop & Conference in June, Dixon told attendees the key to turning the downturn into dollars is figuring out how builders’ needs have shifted. To that end, his Jacksonville, FL-based company looks for example at how it can leverage Building Information Modeling (BIM), an emerging software technology, to supplement sales.

Here’s how two companies in two of the hardest hit housing markets have begun to define reinvention.

Busting Out of the Box in California

Cloyd understands creating new opportunities to serve his customers. He began working on his company’s new line of metal plated connected shear wall frames called Smart Components™ in 2000. The frames or “portals” are engineered to resist any type of lateral and gravity forces applied to a building. They are manufactured using typical dimension lumber, metal connector plates and patented concentric hold-down connectors. According to Cloyd, “Their design provides architects and engineers with a substantial increase in window or door opening flexibility, while also being able to meet the high lateral load capacities engineers are requiring for seismic and high-wind markets.”

They brought the product to market in 2009, in time to gain the attention of builders gearing back up for growth. Cal Truss Director of Business Development Jerry Vulgaris says, “The amount of dollars available to us per job is less and less. The industry’s revenues have come way down, fewer homes are being built and homes are smaller. The solution is to offer

the builder more value-added products that reduce material and labor costs, and increase margins. That’s how businesses will stay alive in this climate,” he says.

Cloyd’s product has similar benefits to builders and consumers as traditional components, making it a natural fit into the company’s existing products. For instance, they’re made in a controlled environment with third party inspections resulting in a better quality built product. They’re delivered as you would panelized components—on trucks and set with cranes, with no on-site assembly required. “Builders know it’s much more difficult to control the quality and waste when you’re putting the pieces together on the jobsite. That’s why the more ways we can find to get components into a house, the better,” says Vulgaris. Despite slower home sales and fewer starts, builders are still looking for manufacturers to process lumber in highly efficient ways with their design software and automated equipment.

Raising Margins in Multi-Family

Offering wall rough openings is a natural way for component manufacturers to increase margins. Companies like Trussway Manufacturing provide plated door and window openings as add-on products to increase the dollar amount of each sale. “Although no sale is simple these days, it’s much easier to sell additional products to an existing customer than it is to win over a new customer who isn’t buying from you,” says VP of Sales Tony Harris.

Harris says like traditional wall, roof and floor components, its plated headers, corners and other rough openings offer builders and framers tremendous value in many areas. The Houston-based supplier of primarily multi-family projects says the products have allowed them to capitalize on themes like reducing jobsite waste and theft while increasing quality and cycle time. “Any time openings are cut in the field, there’s a higher chance of error. Our product ensures a consistent rough opening without the error. It also cuts down on the waste factor you have with traditional loose framing packages,” Harris says. Perhaps more importantly, limiting waste saves on cost. “Cutting openings in the field can easily result in as much as a 20% waste factor. That’s significant, especially when lumber prices are high.” Lessening the risk of jobsite theft is another huge benefit of componentizing more of the structure. “People can easily walk off with 2x4s and other loose lumber, but not many people have use for a wall section designed for a specific job.”

Long Way Down in Florida

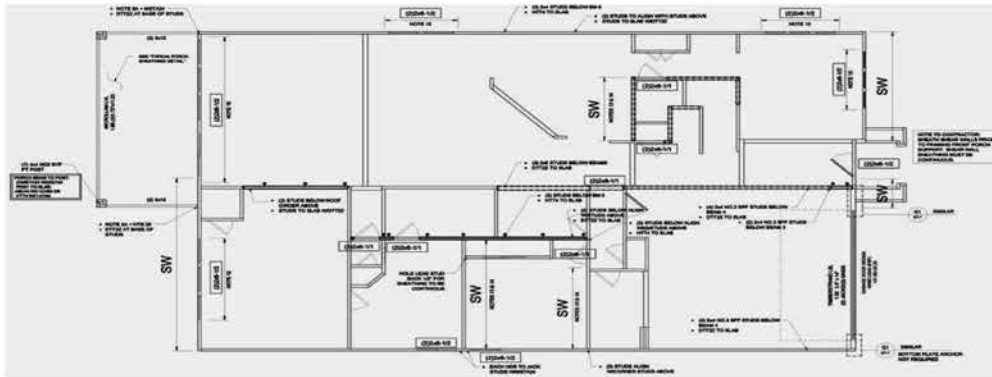
The downturn hit Florida early and hard. So Dixon’s True House and sister residential engineering firm, Apex, have taken a new view of its role between the building and customer in the marketplace. “Currently, the homebuilding industry is like riding a bike with no sense of direction—we’re out of control. No one knows who is steering or what direction it’s going in. We’ve decided to change that,” he told attendees.

2D model does not include wall dimensions or material list.

MINIMUM EXTERIOR WALL STUD SIZES*
*UNLESS NOTED OTHERWISE ON PLAN

120 MPH WIND EXPOSURE & ENCLOSED DESIGN, RUSTLE CRUSHING			120 MPH WIND EXPOSURE & ENCLOSED DESIGN, FLEETING		
WALL HT (FT)	MINIMUM STUD SIZE & SPACING (IN)	MAXIMUM O.C. SPACING (IN)	WALL HT (FT)	MINIMUM STUD SIZE & SPACING (IN)	MAXIMUM O.C. SPACING (IN)
8	2x4 NO. 2 SPP	16"	8	2x4 SPP	16"
9	2x4 NO. 2 SPP	16"	9	2x4 NO. 2 SPP	16"
10	2x4 NO. 2 SPP	16"	10	2x4 NO. 2 SPP	16"
11	2x4 NO. 2 SPP	16"	11	2x4 NO. 2 SPP	16"
12	2x4 SPP	16"	12	2x4 NO. 2 SPP	16"

2x4 NO. 2 SPP OR BETTER @ 16" O.C. MAY BE USED IN LIEU OF 2x4 NO. 2 SPP @ 16" O.C. AND ONLY 2x4 NO. 2 SPP @ 16" O.C. 2x4 SPP OR BETTER @ 16" O.C. MAY BE USED IN LIEU OF 2x4 NO. 2 SPP @ 16" O.C.



1st LEVEL STRUCTURAL FRAMING PLAN

SCALE: 3/8" = 1'-0"

GENERAL NOTES:

- FOR GENERAL NOTES AND SPECIAL SPECIFICATIONS, SEE SHEET 01-A.
- IF ANY PART OF THE CONCRETE SHALL BE CAST IN ALL SECTIONS AND SHALL BE CAST IN PLACE, THE CONCRETE SHALL BE CAST IN PLACE AND SHALL BE CAST IN PLACE AND SHALL BE CAST IN PLACE.
- ALL WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE INTERNATIONAL RESIDENTIAL CODE BOOK (IRC) AND THE INTERNATIONAL BUILDING CODE (IBC).
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ROOF FRAMING LEGEND:

ROOF FRAMING LEGEND (BY PANEL):

ROOF FRAMING LEGEND (BY AREA):

FLOOR FRAMING LEGEND (BY AREA):

FLOOR FRAMING LEGEND (BY ROOM):

FOUNDATION NOTES:

FOUNDATION LEGEND:

FOUNDATION NOTES:

FOUNDATION LEGEND:



Builders' focus is primarily on land development and acquisition, scheduling, and marketing and sales. Dixon says as the industry emerges from the downturn, builders want more for less every day, and there's no real reason for them to collaborate with their material suppliers. "About the only incentive is getting the cheapest mechanicals or concrete or other material." What's more, no one trade is in charge of the design-build process at the level of detail necessary to optimize material use and keep costs in line. The net result is cutting costs and competing on the market price of components, essentially pitting component manufacturers against each other. This means component manufacturers are generally cutting out the value added services, losing margins without any bargaining chips left.

Dixon says his company has a plan to regain their sense of direction and reclaim value through design. In the future, he says, component manufacturers must have more control over the course the industry travels.

BIM Is the BOM

One way to tie processes together is an emerging building design technology that allows 3D modeling and analysis. Building Information Modeling, or BIM for short, is starting to replace traditional 2D building design software as the norm in the market. This is a more sophisticated primarily CAD-based tool that provides an efficient way to ensure all the dimensions and planes are correct, while making it easy to execute a full material take-off. "We're currently in a 2D design world. Plans are very notes-driven and complicated. They don't tell you the exact location of windows, wall length or stud locations. We have to keep going back to architectural drawings for that kind of detail," Dixon says.

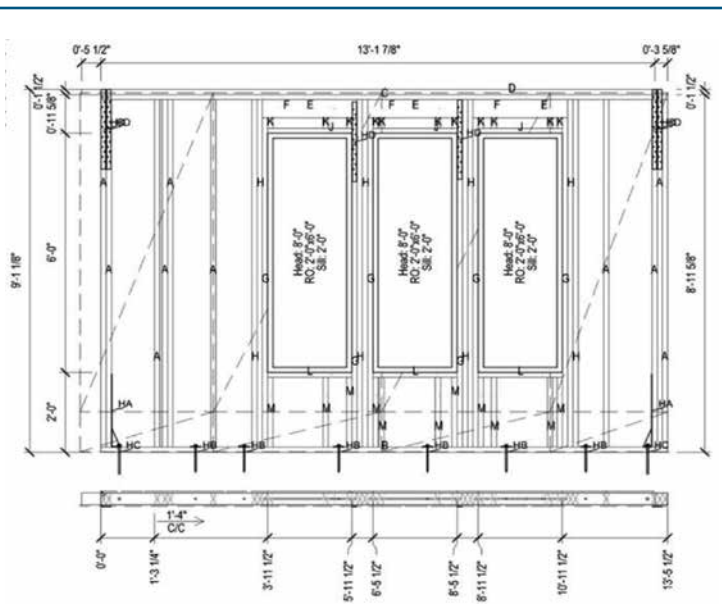
But with BIM's capacity to visually depict detail and dimensions, all this critical information is in one place. The same house modeled in a BIM program shows actual wall stud layout and dimensions. "You can actually start placing various products into walls, see how the loads need to flow through the assembly, etc. Now we can get into analyzing the house by adding or taking away certain materials and determining your ROI on that change." The end result is the ability to generate a complete bill of materials or BOM. The BIM-BOM—that's key for the builder.

Suddenly BIM software makes expanding your services into areas—like hardware sales or complete framing packages—a snap. Other possibilities include becoming a full-service building material supplier, providing electrical services, framing services and HVAC. Dixon's company has been experimenting with BIM software for several years, and says the more they understand the technology, the more opportunity they uncover. "It's incredible the possibilities we have."

Reinvent—The Smart Way

Since reinvention requires creativity, it shouldn't have limitations. But Cloyd and Dixon offer some tips.

Dixon says companies learning to use BIM, the best piece of advice he can give is to define a scope of work (SOW). "That's the very first step. It's also the hardest part," he says, noting it often takes a completely different mindset. BIM technology is so powerful, he says, that all of a sudden you are faced with a ton of opportunities. You want to make sure you're going in a direction that fits naturally into your and your customers' business model.



BIM model offers detailed wall layout and list of materials.



Harris says like traditional wall, roof and floor components, its plated headers, corners and other rough openings offer builders and framers tremendous value in many areas.



A "Smart Portal" installed in a California residence. Turning more of the house into components is the key to regaining market share, says Cloyd.

One of Cloyd's sticking points in inventing new product lines: Be resourceful, meaning avoid investing in something that doesn't have carry-over value to existing product lines. For example, the Smart Components product line uses the same type of materials you'd find in a component manufacturing shop (lumber and steel connector plates), and they can be assembled with standard equipment—component saws, jigs and roller press. "Everybody's got machines that can build twice as many trusses as we have orders for today. We have the best saws, the best equipment out there. We've got to find ways to use it," he said.

What We're Going Through is Natural

"Does anyone ever really want to change? No. It's something no one ever wants to admit, but it's necessary," says Cloyd. That's why, he says, it's best to look at it as a reinvention. "All products go through natural evolution cycles. That's what you're doing when you reinvent," he says.

Dixon says the key to surviving the unforgiving market is to find small ways to make more sales. "It's almost impossible to make money if you're a component manufacturer right now, unless you're the only person in your market."

Cloyd encouraged attendees to "bust out of the box," but cautions against going too far outside the scope of what they know best. "People tend to think 'oh we gotta completely change what we do.' They look for something brand new to do. I say let's look at what we already do, stick to what we know—building components." **SBC**

The Power of Collaboration

Cloyd takes his hat off to truss plate and software suppliers in particular for providing technology and intellectual property to help our industry grow. The development of engineering software has been an important step to moving us closer the industry to a BIM tool that component manufacturers can take to the next level—whole house take-offs and eventually integrated whole house design. Cloyd says software suppliers have invested significant dollars to keep the truss industry on this cutting edge. "We need to continue to articulate what our customers want us to engineer and componentize so software suppliers can further enhance engineering software."

There's strength in working together, he says, especially when you can leverage a trade association like SBCA. "The SBCA connections and dialogue are very powerful tools to use to advance our businesses and industry's best interests."